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Technical Report No. 142

**THE STORY AS SOCIAL ENVIRONMENT:
CHILDREN'S COMPREHENSION AND EVALUATION
OF INTENTIONS AND CONSEQUENCES**

Royal Grueneich
Hamilton College

Tom Trabasso
University of Chicago

September 1979

Center for the Study of Reading

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN
51 Gerty Drive
Champaign, Illinois 61820

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The Story as a Social Environment: Children's Comprehension
and Evaluation of Intentions and Consequences

In her review of the research concerning the development of social cognition, Shantz (1975) discusses how children come to understand the thoughts, emotions, intentions, and viewpoints of other people. This understanding is inferential in nature since much of the content cannot be directly observed and a child must "go beyond the information given" (Bartlett, 1932). Although several studies involve perceptual processing such as in investigations of role-taking (Flavell, 1968) or film understanding (Flapan, 1968), the vast majority of studies in developmental social cognition are primarily verbal and rely extensively on the use of stories as their main source of information about social inferences.

Stories serve many functions in communication. They summarize events concerning happenings to people. They tell us about the goals, plans, and behavior of others. They involve conflict and conflict resolution. They attempt to socialize children by providing examples of desirable behavior which is rewarded and undesirable behavior which is punished. They often are succinct summaries of social events generated by a naive theory of psychology (Heider, 1958), especially of human intentionality.

In this chapter, we shall consider the story as a representation designed for children of the personal-social world. An analysis of children's ability to comprehend the structure and content of stories should tell us much about what they know about this world.

Our focus will be on what has been called "moral judgment" research, in which children are asked to make evaluative inferences about a story, protagonist's intentions, and/or the consequences of his actions. A substantial amount of this research was initially stimulated by Piaget (1932). According to Piaget, children exhibit two types of moral thought: objective and subjective responsibility. In objective responsibility, which is the less developmentally advanced type of thought, an actor is evaluated solely or primarily on the basis of the consequences of his behavior rather than on the intentions behind his performing the behavior. By contrast, for subjective responsibility judgments, which represent the more developmentally advanced thought, the actor is evaluated solely or primarily on the basis of his intentions, rather than on the consequences of his behavior. Having observed that the same child would often make objective responsibility judgments at one time but subjective judgments at another, Piaget did not believe that objective and subjective responsibility represented different stages of development, but he nevertheless did claim that these two types of moral thought followed a developmental trend, with objective responsibility judgments decreasing and subjective responsibility judgments increasing with age.

In his classical paradigm for assessing these two types of judgments, Piaget presented a pair of stories to each child. One of the stories in the pair depicted a protagonist who acted from "good" intentions but accidentally produced a large amount of damage, while the other story portrayed a protagonist who acted with "bad" intentions but produced only

a small amount of damage. After listening to both stories, the child was asked to indicate which of the two protagonists he thought was naughtier. If he judged the protagonist who produced the greater damage as naughtier despite his "good" intentions, the child was classified as giving an objective responsibility response. However, if he evaluated the character who produced less damage but acted from bad intentions as naughtier, he was scored as giving a subjective responsibility response.

Piaget's seminal work stimulated activity on two questions, one having to do with children's comprehension of motives and intentions, and the other with how information about motives and intentions influences children's moral judgments (Keasey, 1978). The two questions are related in that children obviously must have at least some awareness and understanding of intentions before they can make moral judgments that are based on them. However, they are independent in that children may know about intentions but not consider them when making moral judgments. As Keasey has also pointed out, Piaget meant objective and subjective responsibility to pertain to whether a child used intention information to make moral judgments, not to whether he was aware of intentions. Piaget, in fact, even reported that children who made objective responsibility judgments often were aware of the actor's intentions. Piaget's original claims notwithstanding, the subsequent literature has pursued both questions, even though the distinction between them has not always been recognized or dealt with appropriately.

Analysis of Motive and Intention Information

Despite the substantial amount of effort that has been devoted to investigating children's comprehension of motives and intentions, very little consideration has been given to how information about motives and intentions is portrayed for children. This is unfortunate because even a cursory examination of the literature will indicate that investigators have depicted motives and intentions in a great variety of ways. Although it has frequently been recognized that the type of information presented to a child is likely to have an important effect on his understanding of a character's motives and intentions, there has been little direct analysis and systematic investigation of this problem. This section of the paper attempts to fill in part of this lacuna, with the following discussion being motivated by the fact that children's understanding of motives and intentions has usually been assessed in terms of their responses to stories or story-like materials (Shantz, 1975). Accordingly, the focus here will be on how motive and intention information is conveyed in stories or story-like materials and on the effects that this might have upon the child's comprehension. We will consider how motives and intentions are depicted in filmed or video-taped episodes as well as in verbal stories, since the former also have a story-like character, in that the sequence of events portrayed in this format usually parallels that of stories. It may be that there are intrinsic differences between the two media which dramatically affect the comprehension of motives and intentions,

but we ignore this possibility here and instead concentrate on their similarity in event structure.

Story Grammar Analysis

Recently, several investigators (e.g., Mandler & Johnson, 1977; Rumelhart, 1976; Stein & Glenn, 1979; Thorndyke, 1977; Warren, Nicholas, & Trabasso, 1979) have developed story grammars and inference taxonomies to analyze the structure of simple stories. Since the story grammar proposed by Stein and Glenn (1979) seems to be well suited for dealing with the type of goal-motivated activity that is commonly depicted in moral judgment research, our focus will be on this grammar and most particularly on those of its aspects that are relevant to analyzing motive and intention information.

Stein & Glenn's grammar, like the other story grammars, has two major components: categories of information, which specify the different types of information contained in the story, and logical relations, which specify how the categories are connected or related to each other. The key structure in the grammar is the episode, or behavioral sequence, which consists of six main categories plus the relations that connect them. The first category is the setting which introduces characters, provides background information, sets the locale and time, and describes personal traits and dispositions. This is followed by the initiating event, which is some event or happening that begins a character's behavior sequence. The initiating event can be an event external to the protagonist, such as the action of another person (e.g., getting punched by someone), or it can be an action

or internal event originating in the actor (such as the experiencing of pain or hunger). The initiating event evokes some type of internal response in the protagonist, which is the third major category in the episode.

Internal responses include affective or emotional responses, goals or desires, and thoughts or cognitions. The internal responses then motivate him to make some sort of attempt to satisfy his goals and desires. The attempt category represents the overt actions which the protagonist performs in order to satisfy his goals. The protagonist's attempt, in turn, results in some kind of direct consequence. The direct consequence category indicates whether or not the protagonist attained his goals and suggests other changes in the event sequence that result from the attempt. The direct consequence also initiates or causes a reaction on the part of either the protagonist or some other character. Reactions most commonly indicate how the protagonist feels, thinks, or behaves in response to direct consequences, but they may also specify how other characters are affected by direct consequences.

The complete grammar of Stein and Glenn (1979) actually contains a great deal beyond what is presented here. However, most of that is not critical to this discussion, as nearly all of the stories used in the moral judgment literature can be analyzed in terms of the single episode structure described above. For a simple example of how this episode structure can be used to analyze these stories, consider the following story used by Costanzo, Coie, Grumet, and Farnill (1973):

Michael was playing in the toy room. He noticed that the toys were in a big mess and decided to straighten them up. He emptied the toy box onto the floor in order to sort and arrange the toys properly. Just then Mrs. Green came into the room and said, "Oh, Michael. We're going to have company in a few minutes and now you've messed the room all up."

In this story, the setting presents Michael at play in the toy room, and the initiating event is his observation that the toys are in a mess. This event leads to Michael's decision to straighten up the toys, which is an internal response. This, in turn, motivates him to empty the toys on the floor, which is an attempt. The direct consequence resulting from Michael's attempt is not explicitly stated in the story, but it is most likely that the toys are lying in some sort of haphazard arrangement on the floor. Whatever its exact nature, the direct consequence initiates the reaction of displeasure by Mrs. Green when she walks in the room and sees the toys scattered on the floor.

Although a "well-formed" or "ideal" story will contain all six of the categories in an episode, in reality, stories often do not explicitly express all of the categories. For example, Stein and Glenn (1979) note that folktales often omit the internal response and reaction categories, probably because these categories are strongly implied by the information specified in the other categories. The stories used in moral judgment research also typically omit one or more of the categories, the reaction category probably being the one most often omitted, with initiating events also omitted quite frequently. However, even when a category is not

explicitly expressed in a story, the grammar implicitly represents it and thus calls attention to its existence.

Two different claims can be made about a grammar. One is that the categories and relations in the grammar represent the internal structures or cognitive schemata which the subject uses to encode and organize information during story comprehension (Stein, 1979). The other, more modest claim is that the grammar is a useful tool for analyzing the information that is contained both explicitly and implicitly in a story and, therefore, for constructing and analyzing stimulus materials.

Extension of Grammar to Account for Motives and Intentions

By itself, Stein and Glenn's (1979) story grammar does not adequately account for many of the ways in which motive and intention information are conveyed in stories. Consequently, we need to supplement their grammar with a more extensive analysis of the problem. In doing so, we borrow from three main sources. One involves spelling out in greater detail some of the implications of the grammar itself. Another comes from some of the ideas of social psychologists who have contributed to the development of attribution theory (Heider, 1958; Jones & Davis, 1965; Kelley, 1972; Kruglanski, 1975). And the third comes from an examination of some of the various stimulus materials that have been used in the literature.

Before proceeding, it is important that we give some attention to the distinction between the concepts of motive and intentionality (Berndt & Berndt, 1975; Heider, 1958; Keasey, 1978; Shantz, 1975). Briefly, the concept of motive refers to the goal of an actor's behavior or to the

particular reason he has for performing an action, whereas the concept of intentionality refers to whether an action and/or its consequences were intentionally or accidentally produced by the actor. These two concepts are partially interdependent, since the attribution of a motive to an action implies, of course, that the act was intended, and the attribution that an action or behavior was accidentally performed implies that it cannot be accounted for in terms of a motive (i.e., one does not attribute a motive to an actor for accidentally losing his balance and falling down). Nevertheless, the two are not identical. An act may be accounted for by a particular motive, and thus be intended, but its consequences may not have been intended. Thus, the attribution of a motive to an act does not necessarily imply that all or indeed any of the actual consequences of the act were intended. Since there seem to be good conceptual and empirical reasons for distinguishing between motives and intentions (see especially Keasey, 1978), we will attempt to maintain this distinction wherever it is relevant.

Story information about a character's motives and intentions can come from six main sources, which very closely parallel the categories of the Stein and Glenn (1979) grammar. One source is information about the internal states of the character, which corresponds with the internal response category of the Stein and Glenn grammar. According to the grammar, this information can relate to the character's goals or desires (e.g., "Mary wanted to hit John"), her feelings or affective responses (e.g., "Mary was very angry"), or to her thoughts or cognitions (e.g., "Mary

thought John was obnoxious"). A second source of information, corresponding to the attempt category in the grammar, concerns the actor's behavior (e.g., "Mary hit John"). A third source, corresponding to Stein and Glenn's direct consequence category, is about the immediate consequences or results of the act (e.g., "John got a black eye from Mary"). Although actions and consequences are viewed as separate sources of information here, it should be noted that in the natural language description of event sequences, information about actions and consequences is very often conveyed simultaneously rather than separately. For example, the statement, "Frank killed a rat," indicates both that Frank acted in some violent way against the rat and that the consequence of his action was the death of the rat. In this kind of case, it is difficult to make a clean distinction as to whether actions or consequences are being described. The story example from Costanzo et al. (1973), presented above, is another example of this. A fourth source of information, which parallels the reaction category in the grammar, is how the actor reacts or responds to the consequences which her actions produce; i.e., whether she feels surprised, happy, upset, or guilty (e.g., "Mary felt glad when she hit John"). A fifth source of information concerns what kinds of situational or external forces are operating upon the actor and how these influence her (e.g., "Mary's mother told her to hit John"). A final source is the setting itself, in which the character's habitual actions or states supply motives for subsequent actions. For example, "Mary and John were enemies" allows one to infer a reason for why Mary later hits John, namely, Mary disliked John and wanted to harm him.

Each of these sources of information may by itself or through explicit or implicit relationships with other sources allow one to infer what are a character's motives and intentions. Consider information about the character's internal states, which is obviously important for identifying a character's motives and intentions. Internal state information can be provided in various ways in a story or video episode. For example, it may be explicitly given, as when a story contains a statement such as "Bill wanted to help his friend," or when a character verbally expresses his desires or feelings (e.g., "Bill said, 'I want to help Mother'"). This latter technique seems to be a common way of depicting motives and intentions for audio visual stimuli. Internal states are also often conveyed in the video format through facial expressions, tone of voice, body position and movement, etc., with the explicitness of these cues varying from being very clear (e.g., making an emphatic expression of fear and horror) to being very subtle (e.g., showing slight signs of uneasiness). Subtle and inexplicit cues about internal states obviously should be less likely to be detected or used to infer intentions and motives than should clear and explicit information.

Motives and intentions are also specified by the relationships between internal state information and other sources of information. One of the most important of these relationships is that between internal states and actions. Information about internal states and actions is often redundant, so that information about one may imply or suggest information about the other. Thus, knowing that an actor desires to harm another person, we

expect such actions as hitting, pushing, punching, etc. Similarly, knowing that an actor is angry, we are not surprised when he hits someone. Conversely, if an actor hits someone, we readily infer that he wanted to hurt that person, was angry at him, etc. This predictability between internal states and actions is, of course, not perfect. Several actions may be consistent with a particular internal state, and vice versa. The goal of helping someone, for example, can be expressed through a diversity of behaviors, including such things as giving money, performing services, giving advice, etc. Further, internal states and actions may often be related in unusual ways. For example, a mother's desire to help her child might lead to her hitting the child. Her behavior would then seem inconsistent with her goal until it were realized that she acted to prevent him from running into the street and getting struck by traffic.

Since the concept of motive refers to the goal of a particular behavior, the tendency towards having predictable or natural associations between internal states and actions leads to the formulation of a very simple rule for determining an actor's motive: when information about internal states and actions is consistent (i.e., the character's goals, feelings, and thoughts are consistent with his subsequent actions), then the goal which is stated in or implied by the internal state information is perceived as accounting for the actor's motive for his behavior. An example from one of the film episodes used by Hewitt (1974) should illustrate this rule. In this episode, one boy says to another, "I'm going to get you for calling me that," and then lets a table fall on the other's

leg. In this case the actor's behavior should be attributed to a motive of revenge, since this is the goal which he expresses verbally and since his action of letting a table fall on the other boy is consistent with that goal.

When internal state information is concerned not with the character's goals but with his feelings and cognitions, the attribution of a motive often can still be made by inferring a goal that is consistent with both the actor's cognitions or feelings and his action. For example, consider the following statements:

Karen was angry. She hit Judy.

In this instance it will readily be inferred that the motive for Karen's behavior was to hurt Judy, since anger is very consistent with the desire to hurt, as is the behavior of hitting.

When inferences are being made about intentionality, as opposed to motivation, the relationship between internal states and consequences is extremely important because part of the definition of intentionality is that the outcome or the consequences of an actor's behavior be those which he wanted or desired to produce. This suggests that an important rule for inferring whether the consequences of a character's actions were intentionally or accidentally produced is the extent to which those consequences are consistent with the character's goals as stated or implied by the available internal state information. If the consequences are consistent with the stated or implied goals of the actor, an inference that the consequences were intended is likely. If, on the other hand,

this information is inconsistent, an inference that the consequences were accidentally produced would become more likely. An example of this can be seen from one of Piaget's (1932) stories:

A little boy who was called Augustus once noticed that his father's ink-pot was empty. One day that his father was away he thought of filling the ink-pot so as to help his father, and so that he should find it full when he came home. But while he was opening the ink-bottle he made a big blot on the table cloth. (p. 118)

Since Augustus' goal of helping his father is not consistent with getting a big blot of ink on the table cloth, he probably did not intend this to happen.

Another internal state-consequence relationship of particular relevance to the making of inferences about intentionality is that between the knowledge which the actor has about the possible consequences of his action and the actual consequences produced by his behavior. Heider (1958) and Jones and Davis (1965) have noted that consequences which an actor could not have foreseen cannot have been intended by him. Accordingly, one rule governing the attribution of intentionality is that when the consequences of an actor's behavior are those which he expected or knew could occur, he probably intended those consequences; if he was not expecting the consequences, he produced them accidentally. Again, one of Piaget's stories illustrates the application of this rule:

A little boy who is called John is in his room. He is called to dinner. He goes into the dining room. But behind the door was a chair, and on the chair there was

a tray with fifteen cups on it. John couldn't have known there was all this behind the door. He goes in, the door knocks against the tray, bang go the fifteen cups and they all get broken! (p. 118)

Since John had no knowledge that his opening of the door would break the cups, he had to have broken the cups accidentally. Information concerning an actor's knowledge about the consequences which his actions will produce may be explicitly stated or only implied in a story. Piaget's story, for example, explicitly states that John did not know that the tray of cups was behind the door. However, even if the statement about John's lack of knowledge was deleted from the story, we would still probably infer that he accidentally broke the cups, because a door usually does not have cups behind it, and no indication is given that John is aware of this unusual situation.

Another relationship which may specify intentionality is that between actions and consequences. For a particular action, some consequences are more likely to result than others. For example, some plausible consequences of hitting a person are that he will get a black eye, a bloody nose, a bruise, etc. On the other hand, it is unlikely that the hitting will improve the victim's physical condition or make him feel good. Although this association between actions and their likely consequences is not perfect and is stronger for some action-consequence links than others, it is still often strong enough to provide information about whether an actor intended the consequences which his behavior produced. Therefore, the greater the extent to which an action produces consequences not

usually associated with it, the more likely it is that those consequences were unintended, provided of course there is not information that the actor was expecting the unusual consequences to occur. One of Elkind and Dabek's (1977) stories demonstrates this rule:

Larry is playing with a ball in the park. He throws the ball and when it comes down it hits and breaks his friend's glasses that are on the bench.

Since throwing a ball and letting it land does not ordinarily result in glasses being broken, Larry probably did not intend to break the glasses.

In some cases, information about actions alone may specify intentionality. This is because certain characteristics of an action, such as its form, persistence, or intensity, often provide cues as to whether it is being intentionally or accidentally performed. With respect to its form, actions are sometimes described in a story or depicted in a film sequence in such a way that unintentional activity is indicated. For instance, involuntary actions such as "tripped," "slipped," "fell," and "bumped," indicate that unintentional activity is involved. In video presentations, the manner in which an actor performs a behavior may convey information about whether his activity is intentional or accidental. For instance, an actor in a video episode constructed by Farnill (1974) showed fumbling and shaking motions as he dropped a flowerpot, indicating that this action was unintended.

Another informative set of cues about the intentionality of a behavior concerns its persistence and intensity. Since intention implies effort (Heider, 1958), the greater the persistence and the intensity of a behavior,

the more likely it is that the behavior is intended. If a child were to break one dish, we could believe this to be accidental; but if he were to break five dishes, one after the other, we would readily infer that his breaking of the dishes was intentional. Finally, it is important to note that when an action is judged to have been accidentally performed, this means that the consequences of that action could not have been intended by the actor.

How the actor reacts to the consequences of his behavior may also help to specify his motives and intentions. People generally react positively when the consequences of their behavior are consistent with their goals and negatively when they are not. Thus, if a character expresses dissatisfaction with the consequences of his behavior, it is not likely that he performed the behavior in order to produce those consequences. If, in contrast, he expresses satisfaction, it is more likely that he intended the consequences. Further, certain reactions are especially informative about the actor's intentions. For example, a reaction of surprise strongly suggests that a consequence, or at least the magnitude of it, was not expected. This relationship between consequences and reactions is obviously not a perfect index of motives and intentions, since an actor may be pleased when his actions fortuitously result in good outcomes or be dissatisfied when his behavior produces consequences which he had known might occur but hoped would not. Nonetheless, an actor's reactions to the consequences of his actions often serve as good indices of the intentions underlying his behavior.

The following description of a film segment used by Flapan (1968) demonstrates how reactions to consequences can give cues about a character's motives and intentions:

She tries to "show him" how she will shoot by throwing a rock at the squirrel. The rock kills the squirrel, which surprises and grieves the girl. Crying, she says she didn't mean it. (p. 14)

In this sequence, several of the girl's reactions indicate that she had not intended to kill the squirrel; e.g., her expression of grief and surprise, crying, and saying that she hadn't meant to do it.

Still another way of specifying motives and intentions is by providing information about the external forces operating upon the actor and the effect that these forces have upon his behavior. Kelley's (1972) discounting principle expresses one important rule for using this type of information to infer a character's motives. The discounting principle states that a given cause is less likely to be inferred as producing an effect if it is known that there are also other causes that may have produced the effect. From the discounting principle, we can derive the rule that when a behavior is preceded by an external initiating event, an explanation of the behavior in terms of an alternative internal cause should become less likely. For instance, we are less likely to infer that a child's motive for washing dishes is to help his mother when we know that his mother has ordered him to do the dishes.

An actor's motives will also be reflected in the way that he responds to external forces. Kruglanski's (1975) analysis suggests another rule

for connecting an actor's responses to external forces with his motives: when an actor is motivated by a particular goal, his attempts to satisfy that goal will not be influenced by situational factors which neither change his goal nor affect the possibility of achieving it. That is, an actor's behavior will be affected only by situational forces that are pertinent to the goals which that behavior expresses. Thus, by seeing how an actor's behavior co-varies with different situations, we can obtain important information about the motives behind it. For instance, one way of determining the reason a woman is marrying a wealthy man (whether it is because she loves him or because she is interested in his money) is to observe how she responds when her suitor suddenly loses his wealth. If her real motive is love, then she will still marry him because the loss of his wealth will not affect her motive. On the other hand, if her motive is monetary, she will call off the marriage because her desire will then have no chance of being satisfied. A corollary of the above rule is that when an actor's attempt to satisfy a goal is blocked by the situation, he will tend to continue making other attempts to satisfy that goal.

Continuing the previous scenario, if the woman's real motive for marriage is monetary, she can be expected to look for another wealthy suitor if her current one loses his wealth. Another source of inferring intentionality is in setting information where a character's habitual actions or states imply salient, long-term goals. For example, if a story depicts a character who intensely dislikes school and, if the story states that he is not in school one day, the inference will be made that he was not because he did not want

to be, and not because he was ill. The rule here is that habitual actions or states imply goals which account for the specific actions and outcomes depicted in a story unless other information indicates otherwise.

Applications of the Motive and Intention Analysis

One of the advantages of the above analysis is that it focuses the researcher's attention on the character of the information contained in the stimulus materials. Doing an explicit analysis of stimulus materials is important, because it is common to find in the moral judgment literature stories and film episodes which are poorly constructed. In addition, characters' motives and intentions are often ambiguously portrayed. The following story, employed by Piaget (1932), illustrates these problems:

There was a little boy called Julian. His father had gone out and Julian thought it would be fun to play with his father's ink-pot. First he played with the pen, and then he made a little blot on the table cloth. (p. 118)

In this story, it is, first of all, unclear whether Julian's motive for playing with his father's pen and ink-pot was bad or merely neutral. Since Julian was playing with the writing instruments when his father was gone, this suggests that he may have been doing something he was not supposed to do. However, the story fails to make a clear connection between Julian's playing and his father's absence, so it is also reasonable to infer that Julian was not engaging in any forbidden activity. Second, the story provides virtually no relevant information for determining whether Julian intentionally or accidentally made

the ink blot. For this sort of story, where information about consequences is clearer and more salient than that about motives and intentions, it is not hard to see why a young child might emphasize the former more than the latter in making moral judgments.

The extended story grammar analysis is also useful for investigating the effects that variation of stimulus information has upon children's understanding and motives and intentions. For this kind of research, several degrees of difficulty with respect to inferring motives and intentions from story information can be identified at a gross level. The easiest case should be when the actor's motives and intentions are explicitly stated. The following story, employed by Leon (1979), provides such an example:

John was very mad at one of his friends. He saw his friend coming. He picked up a rock and threw it at his friend. The rock hit John's friend on the leg and made a bruise.

It is quite clear that John's motive for throwing the rock is to hurt his friend and that the damage to his friend is intentional. This is because the internal state, action, and consequence information in this story are strongly and consistently related. Throwing a rock implies the desire to harm, and this is, in turn, consistent with the internal state of being mad and with the consequence of bruising his friend's leg.

As information about motives and intentions is made less explicit and relationships between categories of information weaken, making inferences about motives and intentions become more difficult. Compare, for example, the following story also used by Leon (1979):

Mike and a friend were throwing rocks against a wall. Mike threw a rock against the wall. The rock bounced back toward Mike's friend. The rock hit Mike's friend on the leg and made a bruise.

In this story, there is little explicit information about motives and intentions. For example, there is no information about Mike's internal states; i.e., whether he is angry at his friend, wants to hurt him, or has any expectations about what will happen when he throws the rock against the wall. The description of the action suggests that the consequences were probably unintended: when a thrown object is deflected and then hits someone, it is likely that this happened accidentally. Still, it is possible that Mike was throwing rocks against the wall in the hope that one would bounce back and hit his friend. Consequently, these inferences appear to be harder to make than those for the first of Leon's stories above.

The most difficult situation for making inferences may be when different categories of information are inconsistent or in conflict with each other. Warren, Nicholas, and Trabasso (1979) provide an example of this:

Chris wanted to help his mom. Chris broke all the eggs
in the refrigerator. Chris finished in time for supper.

In this sequence, there is an inconsistency between Chris' motive to help his mother and his breaking of the eggs. Warren et al. suggest that one way the comprehender might try to resolve this inconsistency is to infer a plausible rationale for relating Chris' goal and his behavior plus its

consequences; for example, that as he went to the refrigerator to take out the milk, he accidentally knocked over a carton of eggs. Attributions of motives and intentions may be especially difficult when there are contradictions between categories of information, because the contradictions not only must be detected but must also be resolved in some way, which requires a search for plausible means of resolution.

The above discussion implies a program of research which tests the validity of the rules as well as developmental differences in rule knowledge and usage. Studies by Harris (1977) and Sedlak (1979) are suggestive since they assessed children's understanding of Heider's (1958) levels of responsibility attribution. Since their stories represent multidimensional combinations of several factors such as causal relations, goals, foreseeability, and expense constraints, interpretations of their findings are not simple. Both studies found, however, that older children and adults were more sensitive to the factors subsumed under Heider's levels than were the younger children who either did not differentiate causal attributions across levels (Harris) or were more affected by outcomes (Sedlak).

Review of the Standard or Traditional Moral Judgment Literature

The discussion to this point has emphasized that children's understanding of motives and intentions is likely to depend heavily upon the nature of the stimulus materials used to assess this comprehension. Another hypothesis which is suggested by our analysis is that younger children's comprehension should be influenced more than older children's

by variation in stimulus content. These developmental differences in comprehension should be a function of the salience and explicitness of motive and intention information. Although these issues and hypotheses have frequently been discussed in the literature (e.g., Chandler, Greenspan, & Barenboim, 1973; Leon, 1979), they have rarely been dealt with in an explicit manner. Consequently, any review of research which provides data relevant to these issues must be limited. Nevertheless, some studies provide informative or suggestive data. A brief and selective review of these studies would seem to be of value.

Bearison and Isaacs' (1975) study represents an attempt to investigate the effects of providing explicit vs. implicit motive and intention information. Six- and 7-year-old children heard two story pairs which varied according to three conditions. For the story pairs in the "intention-inferred" condition, the children had to infer the character's motives and intentions from the narrative description of the character's overt behavior. In the "intention-explicit" condition, statements which reported the characters' intentions were added to the stories. The stories used in the intention-asked condition were identical to those in the intention-inferred condition. However, after hearing each pair of stories, the children in this condition were asked if each of the characters "meant to do a bad thing?" The purpose of this type of probe question was to induce the children to think about the character's intentions. The results indicated that the children made significantly more subjective responsibility judgments in the intention-explicit and intention-asked groups than in the intention-inferred group.

In interpreting these results, however, some limitations of Bearison and Isaacs' study should be noted. First, their description of their stimuli was not detailed enough to allow for a very precise determination of what the difference was between the stories in which motives and intentions had to be inferred and those in which they were made explicit. Second, it is possible that the questions which were used in the intention-asked condition (i.e., whether the character "meant to do a bad thing?") biased the subjects' subsequent judgments.

Consistent with Bearison and Isaacs' results are some of the data collected by Leon (1979). In this study, first through seventh grade children and college students were asked to judge how much punishment characters should receive in stories that orthogonally combined different levels of intent with different levels of negative outcomes. The subjects heard both a set of simple and a set of complex stories, with the intention information being explicitly stated in the simple stories but only implicitly provided in the complex stories. Whereas for the simple stories there were no significant age differences in evaluation as a function of the intention of the story characters (i.e., the younger children's judgments were as much intention-based as were the college students'), for the complex stories intention had a greater influence on the adults' judgments than it did for the children's judgments. Thus, Leon concluded that the age differences in judgments for the complex stories were due to the children not extracting the same intention information as adults.

An issue, which has received a significant amount of attention in the moral judgment research, concerns the effects of using verbally presented vs. filmed stimuli. Although both types of media have been used, only two studies have directly compared them. Chandler, Greenspan, and Barenboim (1973) found that first graders gave more intention-based judgments for video as compared to verbal story pairs. In contrast, Berndt and Berndt (1975) generally found better comprehension of motives and intentions for their stories than for their films, although evaluations seemed to be slightly more intention-based for the films. Unfortunately, neither Chandler et al. nor Berndt and Berndt described their videotape and verbal materials in enough detail to provide a good idea of how the two media compared in terms of the motive and intention information that was portrayed. This, rather than any intrinsic differences between the media, may be the most important determinant of comprehension and evaluations. For example, one possible argument would be that motive information can be conveyed more directly in stories than in filmed episodes, because motives can be explicitly stated in stories but they cannot be depicted visually because they are internal states. For example, in a study comparing motives inferred from picture stories with motives explicitly stated in verbal stories, Asp, Johnson, and Trabasso (Note 1) found that children five to eight years of age spontaneously recalled more internal state (motive) information from the verbal stories than from the picture stories. Perhaps this kind of result could be offset by other factors. For example, a character in a film can verbally

express his desires or portray feelings that strongly imply particular motives. In this way, information about motives may be conveyed as clearly in a video format as in a story. Whether or not this particular speculation is correct, comparisons between the two media cannot be meaningful unless a careful analysis is made of the information that is being conveyed by the stimuli used to represent each medium.

Another relevant class of studies comprises those which have directly assessed children's comprehension motives and intentions. For example, a major study performed by Flapan (1968) investigated 6-, 9-, and 12-year-old children's understanding of social interaction depicted in filmed episodes. The children's understanding of the interaction was assessed through their recall of the episodes and from their answers to a set of probe questions.

Several significant age trends emerged in the analysis of children's recall data. The 6-year-olds gave fewer explanations that accounted for an action in terms of the just preceding events or the present setting than did the older children. Also, 6-year-olds made fewer statements that indicated inferences about feelings and about thoughts and expectations. In general, Flapan noted that those 6-year-olds who did give explanations expressed these in terms of situations and actions and not in terms of psychological factors such as feelings, intentions, or thoughts or interpersonal perceptions. An example of this which Flapan gives is that a 6-year-old typically would say, "She was crying because the squirrel was dead," whereas a 12-year-old would say, "She started crying because she felt sorry for killing the squirrel."

For probe questions about feelings, 6-year-olds often said that they did not know the answer, or answered incorrectly. Most of the 9-year-olds' answers concerned obvious, uncomplicated feelings that were mentioned in the dialogue or were clearly depicted in the expressive behavior of the characters. The 12-year-olds, on the other hand, mentioned a complex combination of feelings, inferred feelings that were not explicitly mentioned or depicted in the dialogue or action, or answered by naming a feeling and then elaborating in terms of the actor's thoughts, intentions, or expectations. For questions that required some sort of explanation, the 6-year-olds often said that they did not know, gave inappropriate answers, or answered in terms of the preceding action or the current situation. The 9-year-olds explained primarily in terms of the preceding action or the existing situation, but occasionally explained in psychological terms. The 12-year-olds, in contrast, usually explained in psychological terms.

Although Flapan's results support the hypothesis that there are developmental differences in children's ability to understand and infer motives and intentions, this statement probably needs to be qualified because of some limitations in her data. First, her recall data must be interpreted cautiously, because she noted that many times the psychological aspects of the situation that were not mentioned by the children in giving their own accounts of what happened were mentioned in response to specific questioning. Thus, the recall data appeared to underestimate the children's comprehension, and it is possible that they did this more

so for the younger than the older children (see also Stein & Glenn, 1979).

In addition, the results were summed over a great deal of variance with respect to how difficult the interaction was to understand. Since Flapan gave a fairly detailed description of the content of the episodes, it is possible to get some idea of how motives and intentions were portrayed in her films. Some of the information seemed to have been quite clear and explicit. For example, the characters often verbally stated their intentions, as when one character indicated his desire to use another's pair of skates by shouting at her, "I want a turn." Expressions of affect or feeling also seemed to be a common way of conveying internal state information, although it is not possible to determine how clearly these were portrayed. Conversely, a complete understanding of much of the interaction seemed to require inferences about rather complicated motives and intentions, and these often involved a character's perceptions of another character's feelings and motives. Thus, Flapan's stimuli involved a very heterogeneous array of motive and intention information. Her results would have been much more informative had there been some breakdown of the developmental trends in terms of the type of film information.

Berndt and Berndt (1975) showed preschoolers (mean age = 4-11), second graders, and fifth graders videotaped episodes which depicted four types of intentions: instrumental aggression (i.e., aggression that obtained an object which the actor wanted for himself), accidental action, displaced aggression, and altruism. For each of the episodes both an immediate cause (near motive) and a more distant cause (far

motive) were portrayed. For instance, the actor in one of the episodes wanted another boy's airplane (near motive) so he could play airport (far motive). For each filmed episode, a story that corresponded to in form but not in content was constructed.

The analysis of the children's understanding of motives indicated that there were no age differences for understanding of the near motives for the instrumental aggression and accidental episodes. However, the younger children understood the near motives in the other two episodes and the far motives in all episodes significantly less well than did the older children. Since it appears from the description which Berndt and Berndt provide of their video episodes that the actors verbalized their near motives in the instrumental aggression and accidental episodes but may not have done so in the other two episodes, one possible explanation for these results is that the near motive information for the instrumental aggression and accidental episodes was explicit enough that even the young children understood these motives. From the description of the episodes, it also appears that the far motives were not very relevant to understanding the ongoing activity, and that information about them may have been less clear and explicit than that about the near motives. In response to questions about intentionality, the older children performed significantly better than the younger children for all except the instrumental aggression episode, where there were no developmental differences.

Studies by Leifer, Collins, Gross, Taylor, Andrews, and Blackmer (1971) and by Collins, Berndt, and Hess (1974) also found significant

developmental differences on measures of children's understanding of motives and intentions. Leifer et al. showed a movie of an adaptation of a familiar fairy tale to 4-, 7-, and 10-year-olds, and Collins et al. showed an edited version of an action-adventure television program to kindergarten, second, fifth, and eighth grade children. Although neither set of investigators described the type of motive and intention information portrayed in their films, much of this information was probably fairly subtle and complex.

This brief review highlights some of the problems in the existing literature. There are compelling reasons to believe, despite the paucity of relevant data, that the nature of the information which is conveyed by stimulus materials has a critical effect upon children's comprehension and evaluations. Research to date, however, has failed to deal effectively with this problem. Stimulus construction, for the most part, seems to have proceeded haphazardly, with the probably consequence that stimulus materials often fail to answer the questions which they are intended to address. For example, many of the findings in the literature concerning age differences in moral judgments or evaluations may have their basis primarily in developmental differences in the ability to infer critical information from a given set of stimulus materials, rather than in differences in the judgment process per se. If this is indeed the case, then much of the research in this area has not provided meaningful data on the development of the moral judgment process.

Story Grammar Research

In this section, we review some studies concerning children's comprehension and inferences or internal states which have been generated within the framework of story grammars. These studies assume that memory for story information, as assessed either via retelling of the story or by answering probe questions, is an index of comprehension. Their value is that, in contrast to most of the traditional developmental research using stories, memory and comprehension are assessed in terms of specific information about goals, attempts, and consequences, using recall as well as systematic interview or probe questions.

In a seminal study, Stein and Glenn (1979) presented a set of simple stories to first and fifth graders. In one experiment, children's comprehension of the stories was assessed through their recall of the stories; in another experiment, it was assessed by their answers to probe questions about why things happened as they did in the story. For the recall data, internal responses tended to be recalled less frequently than other categories of information, and the fifth graders recalled significantly more internal responses than the first graders. While most of the first graders made some references to the intentions or feelings of the characters, they more frequently concentrated on the outcomes of the action. However, developmental differences were less common for the probe questions. The majority of the children's answers were correct for both age groups--81% for the first graders and 94% for the fifth graders. Although the older children gave more statements in response to the questions, the younger

children mentioned internal responses in their answers as frequently as the older children. In fact, both younger and older children answered the causal probe questions predominantly in terms of internal responses. In addition, many of the internal responses that were infrequently recalled in the first study were often mentioned by both younger and older children in response to the probe questions. The relatively good performance of the younger children in this study as compared to some of the other studies is probably due to the fact that motive and intention information tended to be quite clearly specified in Stein and Glenn's stories.

A recent study by Nezworski, Stein, and Trabasso (1979) has explored how well children are able to infer and use information from different story grammar categories in making moral judgments. The important aspect of the Nezworski et al. study is that the authors controlled for the semantic content of the information as it varied over the different story grammar categories.

In order to illustrate how this was done, one of the three stories is shown in Table 1. This single episode story was written such that the protagonist would be judged as 'naughty'. One group of 12 five-year-olds

Insert Table 1 about here

and one group of 12 seven-year-olds heard three such stories and, after each hearing, made moral judgment ratings, justified the ratings, and then recalled the story. The judgments were decidedly negative, averaging

1.22 and 2.19 for the 5- and 7-year-olds respectively, on a 7-point scale.

In each of five other conditions within each age group, 12 children heard three stories which were modified by adding two sentences. The two sentences contained special information which would allow the child to reinterpret the motives of the protagonist. This special information contained essentially the same semantic content across stories but was systematically varied as to which story grammar category it belonged. Table 2 illustrates the special information categories for the Secret Trip Story.

Insert Table 2 about here

Note that across the five categories, the same key concepts occur: it is about to be Peter's birthday, and Mary may obtain a present for him.

For the five special information conditions, the content from Table 2 was inserted in the appropriate location of the category for the story of Table 1. For example, the Internal Response condition Secret Trip story would read:

"Once there were two children named Peter and Mary who lived across the street from one another. One morning Peter called Mary and asked her to come over to play. Mary knew that the next day was Peter's birthday and she thought about a birthday present. Mary wanted to go shopping and she didn't want to tell Peter. So she told Peter she was sick and could not come over to

play. Then Mary went shopping and bought a brand new skateboard. Mary thought it was a special toy and was glad she kept the shopping trip a secret from Peter."

After each child in each condition heard each of three different stories (each of which had appropriate special information inserted in appropriate locations), he or she rated the protagonist, justified the rating verbally, and recalled the story.

In comparison to the Normal (no special information) version in Table 1, the addition of the special information significantly increased the moral judgment ratings in a positive direction for both age groups. Furthermore, there were no significant differences between the special information conditions with each grade and there was no grade x condition interaction. Table 3 summarizes the moral judgment data.

Insert Table 3 about here

Thus, the children in both age groups did equally well in being able to infer and make use of information about motives from five different sources of information. As long as the content was the same, the sources of information as classified by the story grammar did not appear to matter.

A content analysis of children's justifications for their ratings also reflects children's ability to use the special category information to infer intentions. In Table 4, the proportion of children who

Insert Table 4 about here

justified their rating by (1) citing the protagonist's actions (e.g., "She didn't tell Peter she was going shopping"), (2) making exclusively negative evaluative inferences, (e.g., "She lied"), (3) including mixtures of positive and negative evaluative inferences, (e.g., "She lied but surprised Peter with a present"), or (4) exclusively stated positive evaluative inferences (e.g., "She gave Peter a skateboard for a present") are shown for both the conditions and grades. With respect to the special category conditions, one can see that the addition of the special category information increased the number of evaluative inferences in the mixed and positive polarity categories by 55 percent. The main differences between the younger and older children's justifications are that the younger children gave actions whereas the older children gave mixed polarity inferential justifications.

Summary and Conclusions

Our review indicates that the moral judgment literature has been plagued by serious methodological problems. A large measure of these difficulties stem from the fact that the stimulus materials used to assess children's comprehension and evaluations have tended to be poorly constructed. Because of this, children have often dealt with stimuli which lacked critical categories of information or which failed to clearly specify important connections between categories of information. Further, stimulus materials have focused on only a small part of the information which potentially affects the judgment process. Although these problems have been recognized by several investigators, attempts

to deal with them have generally been unsuccessful and ineffective, probably because researchers have had little else besides intuition to guide them.

Several solutions to the problems of stimulus construction can be suggested. At a minimum, investigators should provide a detailed descriptions of their stimuli, a practice which unfortunately has often not been followed. For stories, this should usually involve presenting the complete stories; for filmed material, researchers should provide as careful and complete a description of the film content as possible. Also, it would probably be useful to have some standardization of stories across studies, since variation in story structure and content probably accounts for a great deal of the inconsistency of results in the literature. Use of the extended story grammar analysis would also help to reduce some of the problems of stimulus construction. This analysis can serve several functions. First, because it provides an explicit analysis of stimuli, it is useful for constructing stimulus materials which contain the kinds of information that the researcher wishes to depict for his/her subjects. Second, it may suggest manipulations of stimulus content that have interesting effects upon comprehension or evaluations. And third, it may identify some of the types of information that have important effects upon children's moral judgments but which might otherwise be overlooked.

Reference Note

1. Asp, S., Johnson, L., & Trabasso, T. How does the mode of presentation effect story comprehension? Paper presented at the annual meeting of the American Educational Research Association, San Francisco, April, 1979.

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Footnote

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Table 1

Nezworski, Stein, and Trabasso (1979) Secret Trip Story

Setting	Once there were two children named Peter and Mary who lived across the street from one another
Initiating Event	One morning Peter called Mary and asked her to come over to play.
Internal Response	But Mary wanted to go shopping and she didn't want to tell Peter where she was going.
Attempt	So she told Peter she was sick and could not come over to play.
Direct Consequence	Then Mary went shopping and bought a brand new skateboard.
Reaction	Mary thought it was a special toy and was glad she kept the shopping trip a secret from Peter.

Table 2

Special Information Categories of Secret Trip Story

Setting	The next day was Peter's birthday and Mary always gave Peter a birthday present.
Initiating Event	Mary's friend told her that the next day was Peter's birthday and that he might like a birthday present.
Internal Response	Mary knew that the next day was Peter's birthday and she thought about a birthday present.
Direct Consequence	Mary gave Peter a present on his birthday the next day.
Reaction	Mary was excited about giving Peter a present on his birthday the next day.

Table 3
Moral Judgment Ratings

Special Information Condition	Grade	
	Kindergarten	Second
None	1.22	2.19
Setting	3.13	3.69
Initiating Event	3.06	3.83
Internal Response	3.42	3.64
Direct Consequence	3.25	3.81
Reaction	3.50	4.06

Note. Data from Nezworski, Stein, and Trabasso, 1979.

Table 4
 Classification of Justifications for Moral Judgments
 by Conditions and Grade Level

	Type of Justification				
	Citation of Acts	Evaluative Inferences			<u>N</u>
		Negative	Mixed Polarity	Positive	
Condition					
Normal	.38	.54	.03	.00	72
Special Category	.12	.26	.38	.20	360
Grade					
Kindergarten	.23	.34	.22	.15	216
Second	.09	.28	.42	.19	216

Note. Data from Nezworski, Stein and Trabasso, 1979.

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